Office of Science and Technology Integration (OSTI), Modeling Program Division
National Weather Service (NWS), National Oceanic and Atmospheric Administration (NOAA)
1325 East West Highway, Silver Spring, MD 20910

Report on Forecasters Workshops and Final List of Forecasters Requests (2020-21)

Background and objectives: The National Weather Service (NWS) Office of Science and Technology Integration (OSTI) Modeling Program Division in coordination with the OSTI-Research to Operations (R2O) Program conducted a datacall followed by three workshops during November to February 2020-21 to engage with the NWS forecast community.

The key objective of these workshops was to identify top forecast priorities and modeling gaps within the operational weather prediction system at the NWS. The operational forecast systems are getting integrated into a Unified Forecast System (UFS) which is expected to bring revolutionary changes by partnering with a wider research community both within and outside NOAA. Operational model development at the NWS is becoming increasingly a community activity, where the community includes institutes such as NOAA, NASA, NCAR and EPA as well as university research groups. The growing UFS community seeks to better understand existing operational model shortcomings and key forecasting priorities in order to decide where development efforts should be focused. The NWS forecast community is the primary customer of the UFS' operational products, and therefore engagement with them is key to maintaining an up-to-date understanding of the model's performance in real-world forecast scenarios and thereby on the model's general utility in society.

Other goals of the workshop included: 1) articulating the forecast system improvement goals to NWS leadership and 2) using workshop results as a starting point to streamline modeling requirement assessments with OSTI Analyze, Forecast and Support (AFS) Office.

Key Outcomes: The workshops were of 3 hours duration each and included short presentations, interactive sessions, panel discussions and open floor for question and answers. In addition to the foresters and the modelers, representatives from the UFS community, NOAA's NWS and OAR Program Offices, OSTI AFS and a few UFS stakeholders outside of the NWS attended these workshops.

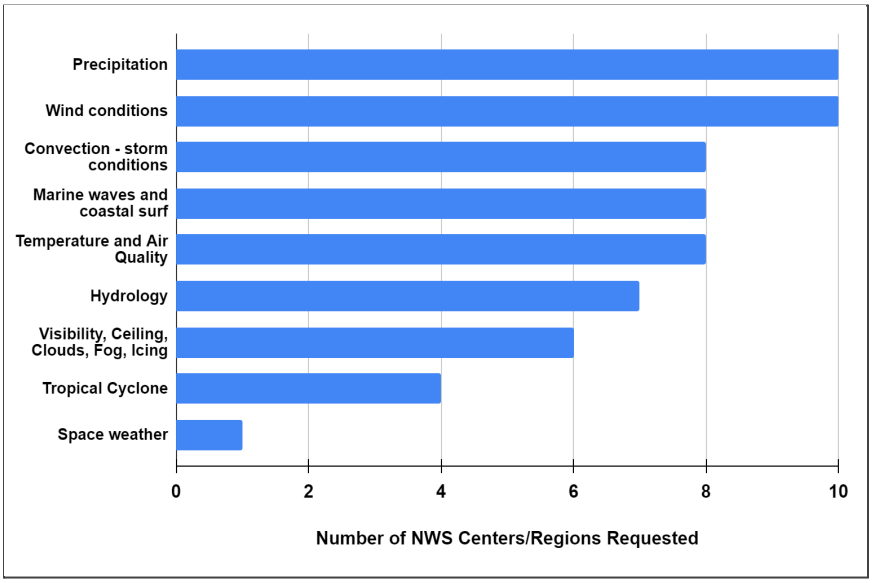
The issues and requests collected from the datacall were organized into two broad categories:

1. issues related to research and model development and
2. other concerns related to computing, ensembles, data access and visualization.

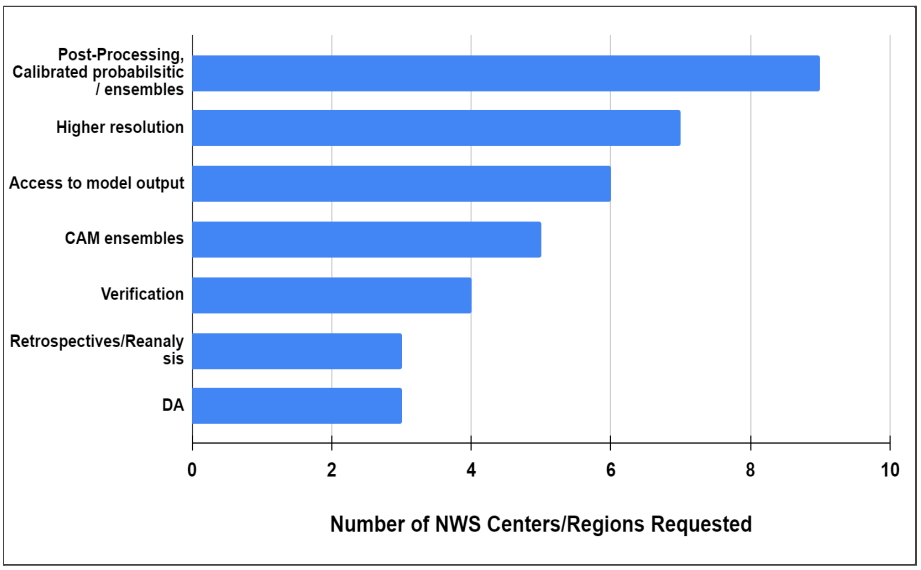
In the workshops conducted thus far, the focus has been on the first group, while the items in the second group are saved for discussion later.

The first workshop (held on November 16, 2020) was intended for mostly forecasters and it focused on discussing key concerns under a number of broad topics including convection, winds and terrain issues, precipitation, floods and Hydrology, tropical cyclones, visibility, marine/coastal issues, temperature and air quality, and space weather. In the second and third workshops (held on January 29, 2021 and

February 11, 2021), forecasters interacted with model developers of the UFS Medium Range Weather (MRW) and Short Range Weather (SRW) Applications (See more on UFS Applications here), respectively.



***Forecasters requests by numbers**: Summary of Research and Development (R&D) concerns from forecasters.*



***Forecasters requests by numbers**: Summary of other related concerns from forecasters*

Finalized list of forecasters requests: After the workshop, key issues and requests were compiled and iterated with forecasters and modelers to form a finalized list of forecaster requests for the UFS MRW and SRW Applications. These are expected to help shape the Modeling Program's priorities as well as the UFS development goals.